I. *Part of a Letter from Mr.* Wm. Arderon, *F. R. S. to Mr.* Baker, *F. R. S. containing a Deſcription of a* Water-Wheel *for Mills invented by Mr.* Philip Williams. *With an* Extract *of a Letter from the Rev. Dr.* Samuel Salter *to Mr.* Arderon, *concerning the* Bark *preventing catching Cold.*

Norwich, May 30. 1745.

SIR,

Read at a Meeting of the Royal Society, Jan. 9. 1745-6.

MR. *Philip Williams*, chief Engineer to our Water-works at *Norwich*, a Man of great Ingenuity, who, in his Time, has been Author of many curious Inventions, has contrived lately a Machine for the Raiſing of Water to ſupply Cities, drain marſhy Grounds, or other uſeful Purpoſes, where no Head of Water can be procured, and the Current runs very ſlowly: Circumſtances which render moſt other Engines uſeleſs.

With his Leave, I now ſend you a Drawing of this Machine (Tab. I. *Fig.* 1.) which I ſhall endeavour to explain in a Manner to be underſtood.

The *Axis* of the firſt Mover is cut into the Form of an hexangular Priſm, of Dimenſions ſuitable to the Force requir'd, as is repreſented by the Letter *A*. Into this, ſeveral Sets of Holes are mortiſed, as *BBB*. Theſe are intended to receive different Sets of Sails made of iron Plates, one whereof is repreſented at *C*; all which Sails are weathered in the ſame Manner as thoſe deſigned for Windmills; only in theſe the Extremity of their Ends ſtands parallel to the Planes of each End of the *Axis*, thoſe Ends I mean which are placed fartheſt from the Centre.

This hexangular *Axis*, when employed, muſt be placed parallel to the moving Stream, and may lie even with its Surface: But the Engine will act moſt vigorouſly, when it and all the Sails employed are intirely under Water, as is eaſy to comprehend.

Each Set of the Sails before deſcribed contains ſix in Number, and are ſo contrived as to be put in and taken out at Pleaſure; whence it follows, that when a ſingle Set of Sails is made uſe of, the Engine produceth a ſingle Effect, when two Sets a double, and ſo on, till the deſired *Momentum* is acquired, with the ſame Quantity of running Water, provided there be Room to fix a ſufficient Number of Sails.

It is farther to be obſerved, that when this Engine is placed with its Sails made and weathered as above directed, they will move with equal Velocity, even ſuppoſing the Current ſhould change its Courſe, and come upon them in a quite contrary Direction, as the Caſe really happens in Rivers where the Tide ebbs and flows; where moſt other Engines yet invented are of little Service.

About ſix Weeks ago I had the Pleaſure to ſee a Model of this Engine tried. It was fixed in our River, in a Place where the Water moved only 27 Feet in 20 Seconds; in which Time the firſt Mover made ſix Revolutions. Its Diameter was no more than two Feet and two Inches; yet it would have lifted fourteen Pounds two Yards high in the abovementioned Time, had not a Misfortune happened to its Caſe which made it not perform quite ſo much.

It appeared to me ſomewhat extraordinary, that the Circumference of its firſt Mover (I mean any determined Part thereof, paſſed through a Space of 42 Feet in 20 Seconds; which is nearly twice as faſt as the Motion of the Water: And as the *Momentum* will be in proportion to the Number of the Sets of Sails that are employed, its Force is capable of being greatly augmented with the ſame Quantity of Water: A Thing not to be admitted without ſufficient Experiment, but what ſeems extremely plain in Theory, and what I am apt to think will anſwer when brought to Practice.

This Engine, when once ſeen, requires little Skill for the Conſtruction of it, is made at a ſmall Expence, and kept in Repair with Eaſe.

DR. SALTER, one of the Prebends of *Norwich* Cathedral, writes, in a Letter to Mr. *Arderon,* that, upon ſeeing Mr. *Baker's* Communication of the Uſe of the Jelly, or rather *Rob,* of *black Currans* in curing ſore Throats, *Tranſ.* N°. 459. p. 655. he thought it might be of Service to take notice of the following Effect of the *Jeſuit's Bark:* The Doctor uſed to be ſubject eaſily to take Cold, and, in conſequence thereof, to be ſubject to have a ſore Throat to a very great Degree; but the laſt time, above 15 Years ago, after his Recovery, he was adviſed, by Sir *Benj. Wrench,* to take two Ounces of the *Bark* (after due Preparation by Bleeding, or Purging, or both, when he was altogether without Complaint) every Spring and Fall. This, he ſaid, would more effectually guard him againſt taking Cold; which he has found ſo far to anſwer, that he is now able to go 500 Miles with leſs Hazard of Cold, than he could go 20 before; and he has never had what he can ſtrictly call a ſore Throat ſince.

II. *A Third* [*] *Account of the Diſtemper among the* Cows; *by* C. Mortimer, *M. D. Fellow of the* Royal College *of Phyſicians, and* Secretary *of the* Royal Society, London.

Read Jan. 9. 1745. DURING the *Chriſtmas* Holidays, we ſent for ſome Milk, as uſual, from the Vineyard in *St. James's Park*; none of the Cows belonging to that Houſe having as yet caught the Diſtemper, tho' three had already died in the *Park*: We uſed Part of the Milk for Chocolate, and ſet Part by for Cream for the next Morning: The Milk had a rank ſouriſh Smell and Taſte like rank Butter; the Cream next Morning was more ſo: We boiled the Milk, which did not curdle; ſo we uſed the Cream with Tea, tho' the Taſte was not very agreeable. The Milk boiled curdled in the Tea; neither any of my Family, nor a Friend who drank of it, found any Inconvenience from it. Upon ſending the Morning following for more Milk, the People refuſed ſelling any, ſaying, one Cow was taken ill, and

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[*] See the Firſt and Second Account in theſe *Tranſactions* № 477. p. 532 and 549.

Philos. Trans. N^{o} 478. TAB. I.

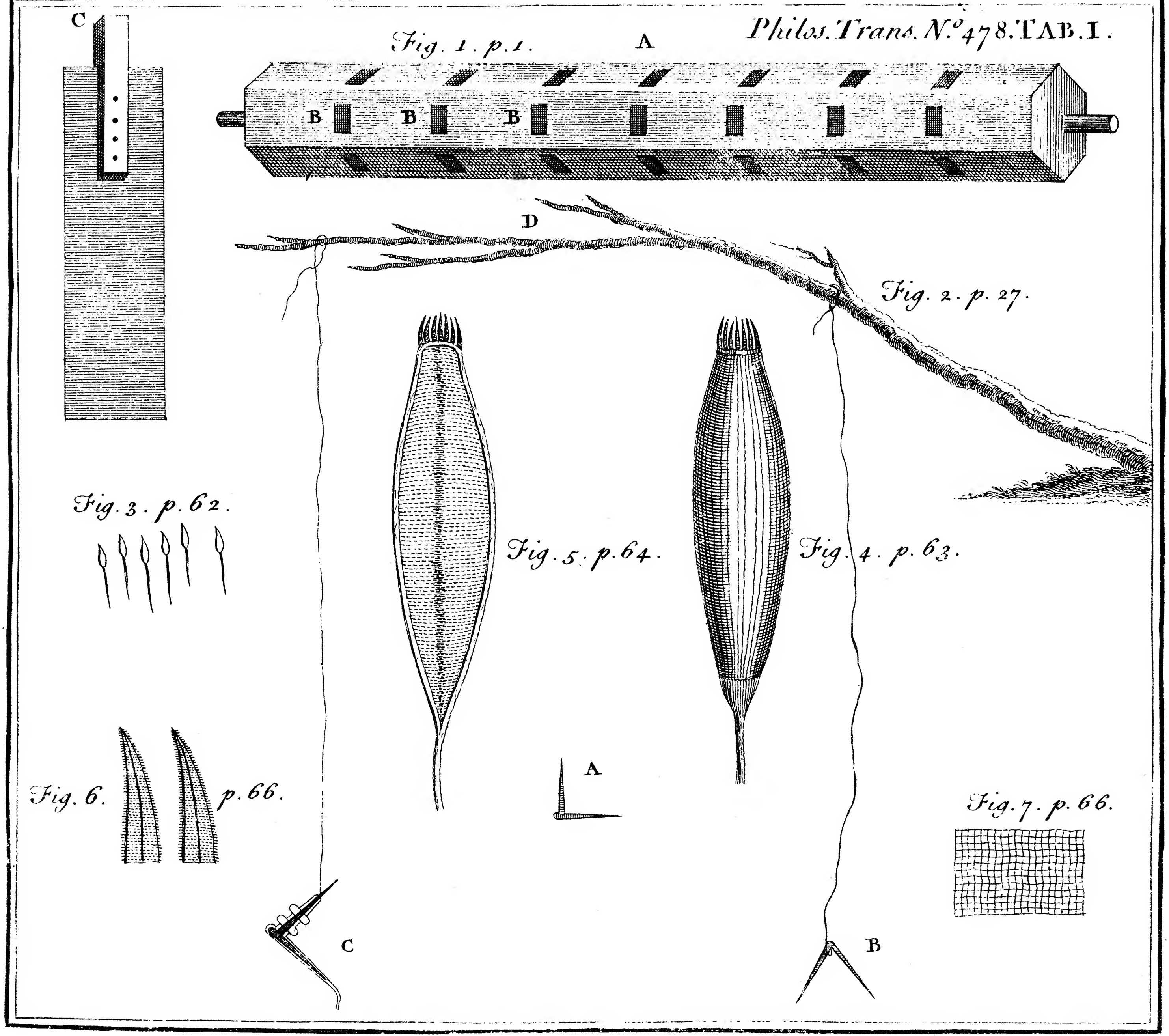

Fig. 1. p. 1.

Fig. 2. p. 27.

Fig. 3. p. 62.

Fig. 5. p. 64.

Fig. 4. p. 63.

Fig. 6. p. 66.

Fig. 7. p. 66.

J. Mynde sc.